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Title:	SQS Fiber Lens Array
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Intended for:	Requirements document to fiber lens array. Presentation to be sent to potential vendor.
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SQS Fiber Lens Array

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Fiber/Lens Interface Array Requirements

- Fibers:
  - MT terminated fiber bundles with 12 single mode fibers per bundle (9/125 microns core/cladding)
  - Approximately 25 MT fiber bundles = 300 fibers
- **Locating disk (glass or ceramic)**
  - Approximately 8 mm in diameter
  - Fibers distributed roughly uniformly. Exact positions are not necessary.
  - Top surface coated with **AR coating** for 1550 nm
  - Coupled to **first lens element (yellow)** that LANL will provide
  - LANL will assemble your fiber lens interface array to LANL's compound lens (fisheye)
- Test devices for Proof of Principle (optional)
  - Test with single fiber with FC connector coupled to a glass rod
  - Possible configurations reduce back reflection could include some combination of coreless fiber, 8 degree polish and AR coating
  - Backreflection will be measured at LANL using a LUNA OBR (optical back scatter reflectometer)
- Sub assembly (final deliverable)
  - Mounted in metal housing to be coupled with our multi lense system
  - Backreflection at interface of glass disk to first lens element must be lest than 50 dB, preferably less than 70 dB
  - Backreflection will be measured at LANL using a LUNA OBR (optical back scatter reflectometer)

SQS Part will be coupled to LANL Multi Lens System

Metal Housing

LANL will provide first lens element

Antireflection Coating for 1550 nm light

Locating Disc with 300 holes

Approximately 300 single mode fibers (9/125 microns)

Breakout from 1 MT to 12 Single Mode

Approximately 8 mm

Glass Disc with 300 holes (Pattern to be defined later)

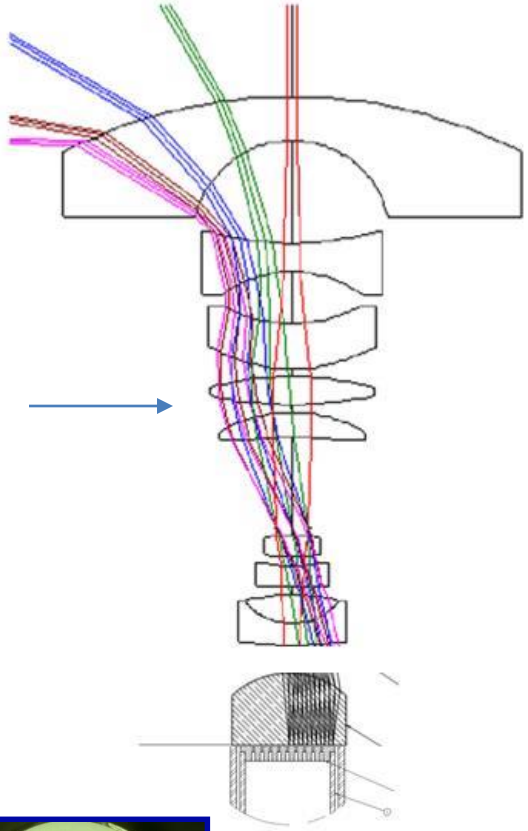
Provided by SQS

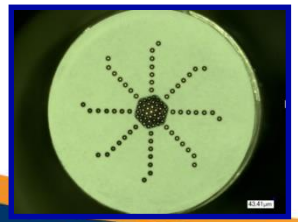
Approximately 25 MT Fiber Bundles

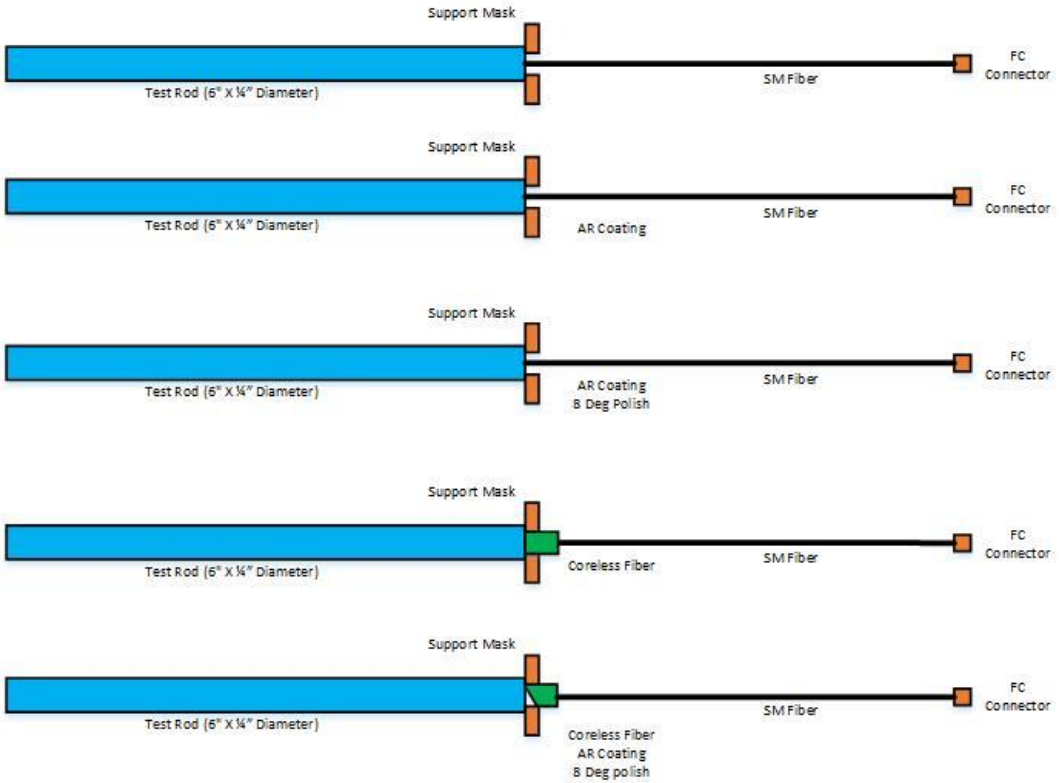
MT Connector (12 fibers)

Reflection from this surface must be less than 50dB, preferably less than 70 dB At 1550 nm

Test Objects for Proof of Principle



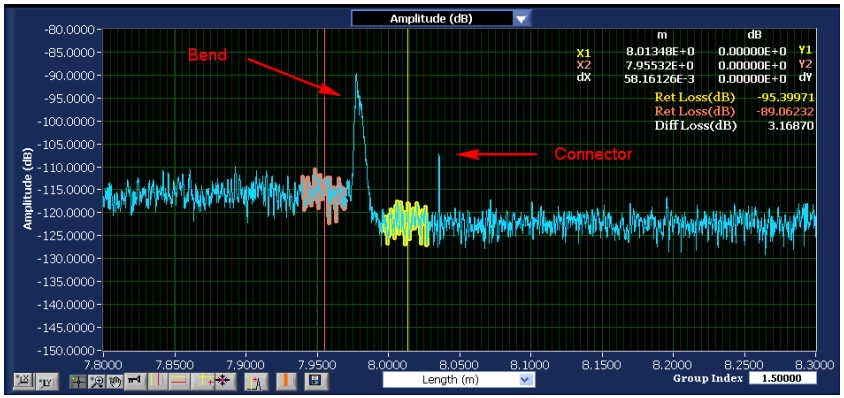




LUNA OBR (Optical Backscatter Reflectometer)

MEASUREMENT PERFORMANCE HIGHLIGHTS

- -130 dB sensitivity
- 70 dB dynamic range
- 2 kilometer length range with no dead-zone
- < 0.05 dB insertion loss resolution



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